

Probing the Underbelly of the Earth, Oceans

The challenge is to drill 20,000 feet — nearly four miles — into the crust of the earth and reach its steaming reserves of 1100-degree F soup, without smashing into smithereens the continuously sampled layers of rock. Such a well won't be the deepest in the world, but it'll preserve thousands of intact sections that sequentially represent a long chapter in the geologic history of the earth.

"My job is to help pull it off," says physicist Peter Lysne (6242), a member of DOE's Geothermal Research Drilling Office (GRDO) — a program established three years ago at Sandia in Jim Dunn's Geothermal Research Division. "We have to rethink all the tools and redo the drilling technology for that extreme temperature and for corrosive environments," Peter explains. "We can do it, but it'll be a massive effort."

The scientific objective for the GRDO program is to drill holes into thermal regions of the earth's continental crust. The researchers have already found that the temperatures along drill holes of even a few hundred feet can vary from warm to hot — and back again. The basic science is being done by mineralogists, petrologists (rock specialists), water chemists, gas chemists, bacteriologists, geologists, and geophysicists.

At the same time, the GRDO teams are on the lookout for potential spinoffs in energy areas. The scientists are gathering data that will allow them to characterize any hot fluids or steam found downhole. Even dry hot rocks are of interest to the LANL team, which intends to produce steam by circulating water through the rocks.

The purpose of GRDO is logistical: to support equally and fairly all research groups involved — including Los Alamos, Lawrence Livermore, Lawrence Berkeley, and Sandia national laboratories. Peter is the project leader for GRDO operations. He and Lew Bartel (6242) share the responsibility of overseeing each drilling project. This includes handling all permits, contracts, and instrumentation needs. Several projects have already been accomplished (see "Six GRDO Projects").

Temperature "logging" — monitoring — is Sandia's responsibility. The logging is accomplished with electronic thermometers that run downhole on the tip of an electrical cable. "The tools have to be very tough and very small," says Peter. "In some wells the pipe itself has only a 1-in. opening." Ron Jacobsen and Bob Meyer (both 6242) developed such instruments and are using them on site at Sulfur Springs.

Sulfur Springs

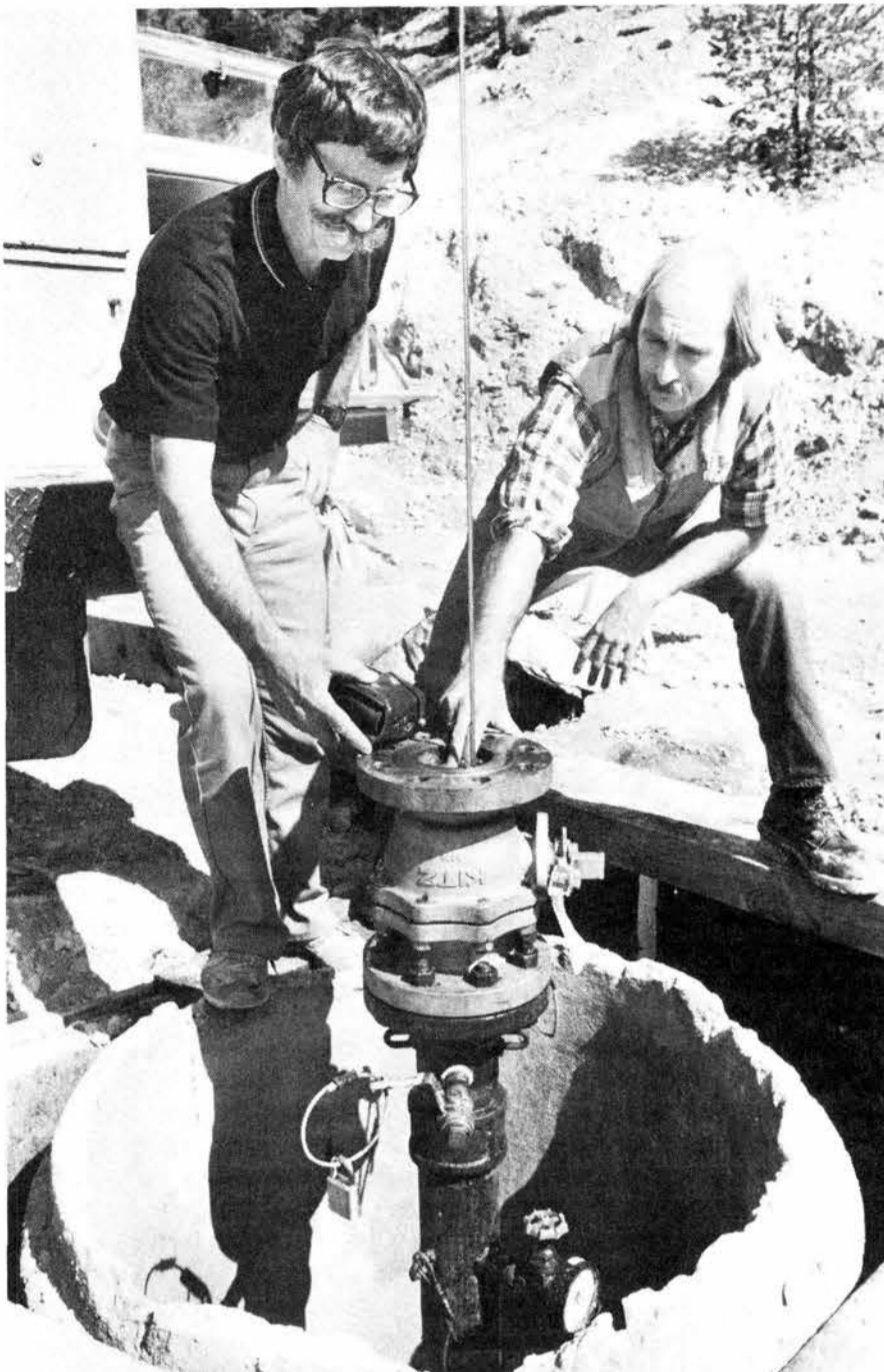
An early step toward punching through to 20,000-ft. depths is the current Sulfur Springs well. Its site at La Cueva in the Jemez mountains is geologically interesting because "it's the intersection of three faults," says Peter.

LANL's principal investigator Fraser Goff also notes that the site is unique: It has acidic springs, something very rare in the U.S. — and even in the world. The top layer of ground, a few feet deep, has a pH of 1 (very acidic). The natural sulphuric acid has a high temperature, lies in shallow basins, and is produced from hydrogen sulfide gas that has been oxidized by bacterial action (now being studied by bacteriologists from UNM).

"Our combined studies will help us understand how hot springs work," Fraser explains. "And how hot springs are related to the caldera [volcanic crater], which is active and very young: only a million years old. And how the springs are tied to deep geothermal reservoirs."

Sulfur Springs, drilled (with a process much like coring apples) by Sandia in less than a month, reached 1730 feet. The whole well was diamond-cored: Continuous cores, long cylinders of drilled

(Continued on Page 6)



UNOFFICIAL FINGER TEST of the temperature of water bubbling up to the top of the well is taken by LANL's Fraser Goff (right), as Peter Lysne (6242) measures air quality with a hand-held meter. The well at Sulfur Springs has a heavy casing, on which a pressure gauge and valve are visible. The cable, emerging from the wellhead, leads to a computer and a printer in the truck, where Bob Meyer and Ron Jacobson (both 6242) read off thermal gradient measurements.



VOL. 38, NO. 23 SANDIA NATIONAL LABORATORIES NOVEMBER 21, 1986

ECP '86 Wrap-Up

Goal Topped by \$83,576, Average Pledge Up \$12

By pledging a total of \$1,163,576, Sandians topped this year's goal of \$1,080,000 for the Employee Contribution Plan (ECP) campaign by 7.7 percent. Annual pledges are up by an average of \$12 over last year.

Contributions at the Fair Share or greater level are also up to 45 percent (an increase of 0.2 percent over 1985). And total participation is at 89.2 percent, up by 0.6 percent over last year.

Nine departments reached 100 percent participation: 130, 1520, 1540, 3180, 3330, 3450, 3510, 4030, and 7250. Bill Marshall (6250), chairman of ECP's executive committee, would like the laurels to go to those departments' directorate representatives and alternates (all part-time volunteers): Alan Nichelason (132) and Robert McIntosh (142); Bob Kipp (1522); Bobbi Voelker (3151) and Doug Barr (3180); Lisa Dunckel (3321) and Fernando Domin-

(Continued on Page 4)

Thanks from Pres. Welber

In a letter to all Sandians in the Sept. 26 LAB NEWS, President Welber noted that Sandia was prohibited from making its traditional "corporate contribution" to the United Way campaign this year; last year that contribution amounted to \$100,000. "I asked everyone to dig just a little deeper this year," said Irwin after the ECP totals were released. "Well, that was short notice, and we didn't quite make up for that \$100,000 — but we came close [more than \$80,000 above the goal]. That definitely shows substantial extra effort on the part of many Sandians.

"To those folks, I say, 'You came through! Thanks!' "

Antojitos

Creativity is Great, but plagiarism is faster. So, stealing shamelessly from Bendix Kansas City's Newsbreak, I asked Tech Writing 3151 to come up with pairs of "Words Most Often Misspelled by Sandians." You're invited to check the correct one of each pair. Answers on Page Eleven.

- | | | | |
|-----------------|-----------------|-----------------|-------------------|
| A. frustrum | a. frustum | B. supersede | b. supercede |
| C. flourescent | c. fluorescent | D. asymmetrical | d. asymmetrical |
| E. accomodate | e. accommodate | F. discrete | f. discreet |
| G. aperture | g. aperature | H. grievious | h. grievous |
| I. contractural | i. contractual | J. apparent | j. apparant |
| K. trunion | k. trunnion | L. viscous | l. viscuous |
| M. photoes | m. photos | N. electrooptic | n. electro-optic |
| O. mischievous | o. mischievious | P. discernable | p. discernible |
| Q. paralell | q. parallel | R. adjudicate | r. ajudicate |
| S. liquefy | s. liquify | T. bremshtalung | t. bremsstrahlung |

* * *

Of Course the Credit Union Knew What It Was Doing when it mailed all its Albuquerque patrons a flyer telling how easy it is to join the Price Club. All you need is your CU statement, your Sandia ID card, and "a valid California driver's license." Responses gave the CU marketing folks an exact count of the number of patrons who pore over their flyers.

* * *

Horrible Thoughts That's what William Murphy says raced through his mind when he discovered his wallet missing -- credit cards, driver's license, \$200 in cash, and more -- during a conference in Bldg. 822. William is a product manager at Monsanto Research Corp. at Mound in Ohio. "I retraced my steps to the parking lot without ever looking up," he writes. "Then I became aware of someone approaching me and looked up to see a man holding a billfold and looking at a driver's license. 'This looks like it might belong to you,' he said. You can't imagine my relief." Turns out the Good Guy was Don Mason, an EG&G contractor assigned to Div. 6313.

* * *

And Warm Ones Comes now a tale from Patte MacPherson in Property Control 3413. Seems she didn't control her own property all that well last week -- she lost her expensive gold (that's probably a redundancy) ring. She called Benefits' Lost & Found the next afternoon, and Liz Schumann told her it had been turned in. Getting a gold ring is more romantic, but getting a lost gold ring back is, unfortunately, more rare. At any rate, thanks, unknown Sandian, from Patte.

* * *

Wrong Ray Last issue we credited Ray Chavez in Tech Art with doing the final version of Barbara (3732) and Patrick (3745) Hoffmans' winning entry in the Purchasing poster contest -- the circus poster. Turns out it was Ray Lamb (3155) who did the work.

* * *

Happy Thanksgiving, Everyone! And what most of us will feel especially thankful for are those loyal compatriots who will keep the Labs running a week from today! ●BH

Supervisory Appointments



JOHN VITKO to manager of Exploratory Systems Department 8430, effective Nov. 16.

After joining Sandia Livermore in November 1974, John worked on spectroscopic studies of radiation damage and later studied solar mirror durability and heliostat corrosion. In 1981 he moved to the System Studies Department, where he worked on the high-temperature applications of central solar receiver technology. In January 1982 he became supervisor of the Systems Research Division, and in November 1983 moved to supervisor of the Exploratory Technology Division. Most recently, John has headed programs ranging from the modeling of rocket plumes to the development of new lab photon and ion sources.

He has a BS in physics from Rensselaer Polytechnic Institute and a PhD in experimental solid state physics from Cornell University. John, his wife Katherine, and their two daughters live in Livermore. He enjoys family-centered activities and also participates in a Late Vocations Program through the Orthodox Church.



STEVE BINKLEY to manager of Combustion Sciences Department 8350, effective Nov. 16.

Steve arrived at Sandia Livermore in 1980 after working as a research associate in theoretical chemistry at Carnegie-Mellon University in Pennsylvania. His first assignment was in the Theoretical Division where he applied theoretical chemistry methods to problems in explosive chemistry, silicon chemical vapor deposition, and combustion chemistry. In July 1984 he was named supervisor of the Scientific Computing Division.

Steve earned a BS in chemistry at Elizabethtown College in Pennsylvania and a PhD in the same field at Carnegie-Mellon.

He and his wife Sharon have lived in Livermore for the past six years. Steve is active in the American Chemical Society. Among his outside interests are classical music and horseback riding.

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VISITING SANDIA LIVERMORE for a tour and briefing recently was Nicholas Friesen, vice-president of Region IX, American Society of Mechanical Engineers (ASME), center. He was greeted by Carolyn Pura (8434), immediate past ASME Mt. Diablo Section chairperson, and Arlyn Blackwell (then 8200, now 400). His visit included tours of the computer center, Combustion Research Facility, and Tritium Research Laboratory.

Grave Implications for Semiconductor Industry**Japanese Taking Lead
In Advanced Processing of Electronic Materials**

The U.S. is falling behind Japan in advanced processing of electronic materials. That's one major finding in a recently issued National Research Council report on the relative strengths and competitiveness of the U.S. in materials science.

The report was produced by an eight-member panel commissioned by the National Science Foundation and chaired by Walter Bauer, manager of Physical Research Department 8340. Tom Picraux, manager of Ion Implantation and Radiation Physics Research Department 1110, was a panel member. Other members were from Oak Ridge National Lab, AT&T Bell Labs, IBM, Eaton Corporation, Stanford University, and the University of Illinois.

The panel's report is one of several state-of-the-art reviews, sponsored by the National Materials Advisory Board, that assess and monitor world trends and the relative strengths and competitiveness of the U.S. in rapidly evolving areas of science and technology.

Walter's panel concentrated on electronic materials processing, an area important to the growing electronics, computer, and telecommunication industries. "And these industries are important because they're revolutionizing major aspects of our lives," says Walter.

The five panel members, including Walter and Tom, who took a fact-finding trip to Japan were welcomed into its major industrial and university laboratories. "We found that the Japanese are taking the lead in several key areas of electronic processing technology," Walter continues. "They have become a dominant force in areas that have grave implications for the U.S. semiconductor industry over the next five to ten years."

In the area of compound semiconductor processing, for example, "The Japanese labs are really making advances over the whole spectrum of processing technologies," notes Tom. "They are going after the key issues and are methodically solving the problems. They're going to be awfully tough competitors in the emerging areas of optoelectronics and GaAs [gallium arsenide] integrated circuits."

Long-Term R & D

"The Japanese have a long-term commitment to industrial research and development, and they have the structure for coordination and funding," Walter adds. "The Japanese government plays the role of a catalyst, but it doesn't provide all that much funding. The difference is that companies there don't look so closely for the short-term profit. They are committed to long-term R&D aimed at developing new markets, and they don't cut off support just because today's profits may be down."

"Unfortunately, U.S. industry in general is not looking ahead to a five- and ten-year timeframe in R&D; rather, it's doing research in one- to three-year timeframes," Walter continues. "This short-term focus could be changed if the U.S. decides that the national labs should get more involved in this area and makes funds available."

Role for National Labs?

Although the panel's report identified university programs as an area of strength in the U.S., it pointed out that U.S. industry and government laboratories appear to be lagging behind their Japanese counterparts, and that long-term commitment to R&D in U.S. industry needs encouragement. The report recognizes that U.S. national laboratories could provide substantial support to U.S. companies if appropriate coupling were established, but that such coupling would require a change in emphasis from current policy.

The study was specifically aimed at microchip



VP BILL BRINKMAN (1000) received an early copy of a report recently issued by a National Research Council panel, which was chaired by Walter Bauer (8340), right; Tom Picraux (1110) was a member of the panel. The report reviewed the relative strengths of the U.S. and Japan in advanced processing of electronic materials.

surface-processing technologies and identified several emerging technological areas where the U.S. or Japan appears to be ahead. The panel found, for example, that the U.S. is keeping its lead in implantation research and is still the major supplier of implantation equipment worldwide, but has surrendered its pre-eminence in lithography to Japan in the past year. The U.S. still leads in thin-film deposition and in etching technologies, as well as in thin-film epitaxy, but Japan is moving up rapidly. The U.S. is lagging in such emerging processing areas as microwave plasma processing, compound semiconductor processing, optoelectronic integrated circuits, electron and ion microbeams, laser-assisted processing, and three-dimensional circuits.

"In Japanese laboratories and industries, we are witnessing a revolution that is threatening one of our most important industrial and manufacturing bases," Tom points out. "It is clear that the Japanese have done a more effective job of focusing the various elements of their research and development struc-

ture than we have in the United States.

No Easy Recipe

"We give no easy recipe," Tom continues. "But the first step is to recognize the magnitude and seriousness of the challenge, and to focus more effort into our intermediate-term R&D effort. Our world position in computer technology, the communications industry, and advanced defense systems — in all of them, our success in the underlying technology of advanced processing is crucial."

The panel has now presented its report at the National Academy of Sciences in Washington to 140 leaders in government and industry, and has published its findings. Walter is hopeful that "Wheels will start turning with industry and national labs people" and the government will make a commitment to couple the labs with industry as well as to involve the university research community.



**SANDIA
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SANDIA NATIONAL LABORATORIES

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Take Note

The 1986 recipient of the Young Author's Award in Electrochemical Science & Technology is Joe Farmer (8313). His article, "Nucleation of Pb Electrodeposits on Ag and Cu," appeared in the January *Journal of the Electrochemical Society*. The Society's Publication and Honors and Awards Committee presented him with a scroll and a cash award at its 170th meeting last month in San Diego.

Congratulations

Geana and Kevin (8271) Davidson, a daughter, Ciera Renee, Oct. 18.

Karen Lee and Davey Chin (both 8272), a son, Aron Anthony, Oct. 11.

Welcome*Livermore*

Cherie Cuthbertson (8022)
Ilene Mulry (8022)
Elizabeth Pristia (8022)
Gary Wrestling (8024)

Davis

Donna Edwards (8234)

Manteca

Debra Randich (8022)

Oakland

Ed Hathaway (8026)

Turlock

Evelyn Chaney (8022)

Albuquerque

Betty Fredlund (8022)

(Continued from Page One)

ECP Harvest

guez (3312); Hazlet Edmonds (3432) and Kathy Marder (3411); Don Devoti (3510) and Nathan Golden (3552); Kurt Olsen (4050) and Bob Stromberg (4030); Dyan Clements (7263) and Bob Summers (7252). In Bill's words, "Congratulations! And a sincere thanks to the 43 others, who worked just as hard, for their efforts on behalf of our community."

Neighbor Helping Neighbor

Dennis Miyoshj (5240), on behalf of ECP's publicity committee, would particularly like to thank all the Sandians who shared their stories in the LAB NEWS: "Their courage in being portrayed as past recipients of aid from United Way agencies [which receive most of the contributions to ECP] reminded many of us how suffocating — and close to home — sudden need can be." Those Sandians demonstrated how fine the line sometimes is between coping successfully and being submerged in chronic troubles.

"Today, we know that no government program, no bureaucracy, can provide much more than a poor substitute for the warmth of neighbor helping neighbor." That's how President Reagan described voluntary donations in his campaign kick-off message back in September. "So it is that the United Way, 100 years old next year, represents one of the greatest innovations in our history," he concluded.

In one way or another, most Sandians got that message.

EVP Lee Bray Looks Ahead

In this year's United Way campaign, Executive Vice-President Lee Bray (30) headed the Major Firms Division, which accounted for some two-thirds of the funds raised. And next year he will head the entire campaign effort. So he takes more than a passing interest in how well Sandians did in the ECP drive.

"It's important, it seems to me, that Sandians recognize how crucial their role is in our community," Lee notes. "After all, about 26 percent of the employee dollars raised came from Sandians. That's most impressive, an exemplary achievement. With such a high level of participation and such a high level of contribution, we're obviously making a major positive impact on our community.

"And our level of responsibility is equally high," Lee continues. "Anything we do affects the community; that's a fact we as Sandians must reflect in our ECP decision-making. But that's what being a leader is all about.

"I'm looking forward to next year when I'm confident I'll again be proud to be a Sandian — I know we have the potential for at least one more really great ECP campaign!" he concludes, with a smile.

Congratulations

To Harriet (3531) and Alan Morgan, a son, Chase Alexander, Oct. 22.

Stay Tuned For the Embolism Bowl

Need a good reason to stay away from those interminable end-of-season bowl games? Consider the case of a bartender [described in the *New England Journal of Medicine*]. The bartender, a previously healthy 40-year-old man, suffered sharp, left-sided chest pain on Jan. 2, 1986. At fault was a pulmonary embolism, a blood clot. [that] the physicians were able to pin on the man's New Year's Day activities, when he "awoke at noon. . . lay down on his sofa, watched three consecutive football games on television, and then went back to bed. For a period of more than 40 hours, he did not leave his home, and he stirred only occasionally for refreshments." Such bowl-game watching, they note, may be a previously unrecognized blood-clot risk factor.

Science News



WORKING CLOSELY TOGETHER on the ECP campaign — and celebrating the harvest at a 'thank you' luncheon at the Coronado Club last week — were 58 directorate representatives and alternates; 11 of the 15 whose departments came in with 100 percent participation are (bottom, from left): Kathy Marder (3411), Doug Barr (3180), Hazlet Edmonds (3432), Lisa Dunckel (3321), Don Devoti (3510), and Bob Kipp (1522); and (top, from left): Alan Nichelason (132), Bob Summers (7252), Nathan Golden (3552), Bob Stromberg (4030), and Bob McIntosh (142).

Barsis Heads New Directorate

Ed Barsis has been named director of newly created Computer Science and Mathematics 1400, effective Nov. 1.

Ed joined Sandia in 1969 as a staff member in a Livermore weapon component division doing work in solid state and shock physics. In 1971, he was promoted to supervisor of a device studies division and, in 1977, became supervisor of divisions concerned with the advanced development of nuclear weapons.

In 1978 he came to Albuquerque as manager of Electronic Subsystems Department II, the group that headed the development of the SANDAC (Sandia Airborne Computer). He retained that position until his recent promotion.

When asked about his new position, Ed says, "I think the new organization can fill a gap in computer science. That's important because computers are going to play an ever-increasing role in defense, energy, industrial competitiveness, and in our lives in general."

Before coming to Sandia, Ed spent two years as a captain with the Army. He has a BS, MS, and PhD in engineering physics, all from Cornell.

Ed is a member of the American Physical Soci-



ED BARSIS (1400)

ety. In his spare time he enjoys hiking, skiing, and scuba diving.

Sandians, 'Networking Others' Participate in Career Conference

Almost 250 women, staff level and up, attended the Labs' 1986 Career Conference for Women at the Albuquerque Convention Center on Nov. 5, reports Margaret Harvey (3510), women's program coordinator.

"Most participants were Sandia employees, though we did send some invitations to other organizations — EG&G, DOE, the 1606th Air Base Wing at Kirtland, the Naval Weapons Evaluation Facility, and Los Alamos National Laboratory," says Margaret. "We didn't invite people outside the Labs to our first conference in August 1984, but decided this time around that it might be a good idea to encourage networking across company lines, as well as internally."

President Welber welcomed conference participants and later joined other members of Small Staff at the conference luncheon. The luncheon speaker, Betty Harris (a member of the technical staff at

LANL), discussed the importance of recognizing your own special abilities, and managing them skillfully — the keys to "taking charge" of your own life.

Eighteen facilitators led workshop sessions throughout the day. Some of the topics covered: stress management, communication styles, conflict resolution and negotiation, assertiveness, financial fitness, the working mother/parent, technical burnout, time management, and leadership.

"We received many positive comments on the conference and some suggestions for improvements," says Margaret. "People enjoyed meeting other staff women at Sandia, as well as representatives from outside organizations. Also, many participants discovered that some of their problems aren't theirs alone; others have the same ones. The conference provided a chance to share some mutual concerns."

•PW

An aerial photo of Tech Area I (color, 16 by 20 inches) is now available from the South Highway 14 Village Project at the LAB NEWS office. Mounted on pressboard and ready for hanging as is or for framing, the photo replaces outdated versions. For use as a memento, it includes a four-inch border at the bottom for signatures of friends and colleagues. Cost is \$20. All proceeds from sale of these photos go to the South 14 Project (which paid for the photos).

Curtis Vickery (7265) received the 1986 R. E. Peterson Award of the Society for Experimental Mechanics for "Experimental Analysis of Displacements of Read/Write Heads Upon Floppy-Disc Media" as the outstanding applications paper published in the *Journal for Experimental Mechanics* during the period June 1985 to June 1986.

Patricia Benson (3545) was designated a Certified Employee Benefit Specialist (CEBS) by the International Foundation of Employee Benefit Plans and the Wharton School of the University of Pennsylvania. Patricia qualified for the designation by passing a series of ten college-level national examinations on employee benefits subjects.

Carol Stein (6331) received an award for the best technical paper presented at the March Waste Management '86 Conference held in Tucson. Her paper: "Geochemical Overview of the Waste Isolation Pilot Plant near Carlsbad."

Marv Torneby (3530) was elected to the Board of Directors (as an employer representative) of the Southwest College Placement Association (SWPA), which serves six southwest states.

Early Deadline
Because of the Thanksgiving holiday, the deadline for ads and for all other news items for the Dec. 5 issue of LAB NEWS is noon on Nov. 26.

Patricia Newman (3144), Library translator and interpreter, was awarded the Alexander Gode Medal for Distinguished Service to the Cause of Translation by the American Translators Association. The award is presented yearly, if appropriate, and has gone in the past to language institutes, universities and founders of national services, and dictionary authors.

Bob Duff (3810) was elected chairman of the local chapter (formed last spring) of the National Classification Management Society (NCMS).

Video enthusiasts won't want to miss "Scapes of Paradox: The Southwest and Iceland" by Steina now showing at the Jonson Gallery at UNM. The exhibit is a continuous two-channel sound and video environment presented on a circle of monitors. Site-recorded images and sounds are electronically layered so that the North Atlantic surf washes through Arches National Park, and a bubbling Icelandic hot spring percolates through the desert clouds. This display of electronically generated color and texture con-

tinues until Nov. 30. Gallery hours are 10 a.m.-5 p.m. Tuesday-Friday, and 1-5 p.m. Saturday and Sunday. Contact the Jonson Gallery on 277-2967 for more information.

The December meeting of the American Institute of Aeronautics and Astronautics is scheduled Dec. 12 at the Regent Hotel. NM Senator Pete Domenici, Chairman of the Senate Budget Committee, will discuss how recent research efforts in New Mexico contribute to the Strategic Defense Initiative (SDI). The public is invited. Reservations (deadline is Dec. 9) are mandatory. For reservations, call Terry Jordan on 4-1899, Walter Rutledge on 4-0119, Greg Homicz on 4-9065, or Don Nash on 6-9786.

Labs Christmas Projects
As in previous years, LAB NEWS plans to cover Christmas charity projects run by Sandia employees in its Christmas issue (Dec. 19). Please call us by Dec. 8 (on 4-1053 or 4-7841) if you are heading up any such projects.

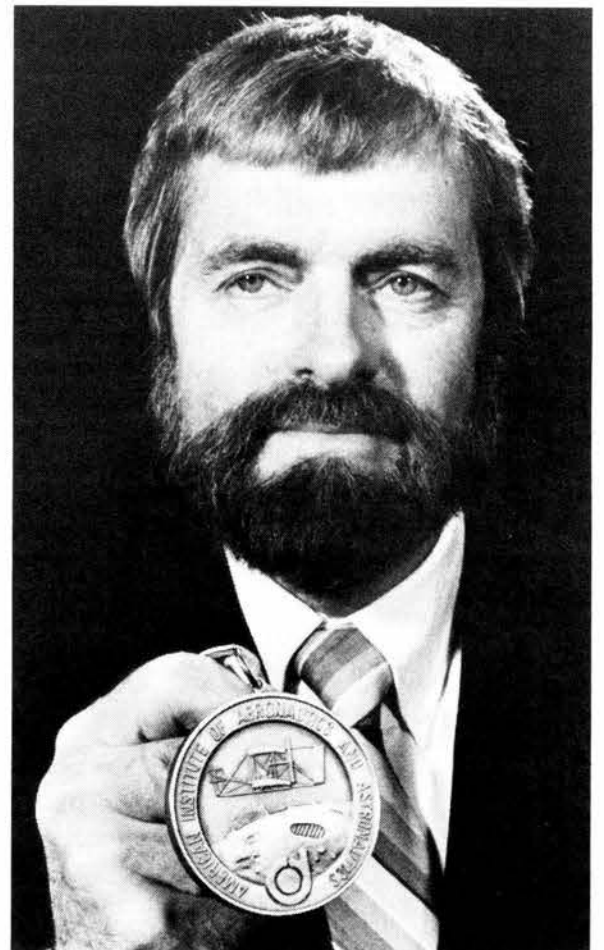
Tomorrow's home is here today. You can find out what it's like by visiting Design House '86, a collaboration of the International Society of Interior Designers and James Green Custom Homes. A tour of the house costs \$5 with proceeds going to United Way of Greater Albuquerque. Some of the features of the two-story, 4,000-square-foot house include electric eyes that automatically turn on stairway lights at dusk, water faucets without handles, and light fixtures that glow at the clap of the hands. The house, located at 6501 Country Club Drive NE (Tanoan area), is open to the public Nov. 22-Dec. 13. Selected items from the house will be auctioned Dec. 14. United Way is looking for volunteers to staff the home (three-hour tour shifts). For specific information on tickets or to volunteer, call Carol Grothe at United Way on 247-3671.

If Albuquerque has Maya fever, the New Mexico Museum of Natural History has the cure. A photograph exhibit, "Terra Maya," opened Nov. 16 and continues through Feb. 14. Color and black and white images by photographer and archaeologist Peter Harrison depict how the Mayans incorporated the natural world into their art and architecture, how they modified their world for agriculture, and how nature has retained some (and erased other) evidence of the Mayan culture. The Museum is open daily from 10 a.m.-5 p.m. For further information, call the Museum on 841-8837.

Experimental Aerodynamics Div. 1554 hosted the 66th Semiannual Meeting of the Supersonic Tunnel Association (STA) in Albuquerque last month. STA, an international organization formed in 1954, gives member organizations — R&D facilities, aircraft companies, and universities that operate high speed wind tunnels — an opportunity to exchange ideas, testing techniques, and problem solutions. Sandia has been an active STA member since 1955. Fifty-one delegates representing 35 member organizations

attended the Albuquerque meeting; seven foreign countries were represented. Papers presented covered a wide range of topics: wind tunnel facility design and operation, test facility components, instrumentation, measurement techniques, and test results. Meeting attendees toured Sandia's wind tunnel facilities and blast wave simulation facility.

Bill Pepper (ret.) was co-recipient of an international award presented at the 9th AIAA Aerodynamic Decelerator and Balloon Technology Conference held in Albuquerque last month. The Aerodynamic Decelerator and Balloon Technology Award is presented every 2-1/2 years to persons prominent in parachute technology and systems development. Bill was recognized for "twenty-seven years of major contributions to parachute technology and design in the areas of weapon parachute systems, reentry vehicle and scientific payload recovery, and Kevlar parachute technology." Sandians presented 13 of the 51 papers on parachute technology at the meeting, attended by 127 people from 10 countries. Don Waye (1552) was administrative chairman for the conference, and Carl Peterson (1552) chairs the AIAA technical committee that sponsored the meeting.



BILL PEPPER (ret.) holds the medal he received at an AIAA meeting in Albuquerque last month. The 1986 Aerodynamic Decelerator and Balloon Technology Award cited Bill for 27 years of major contributions to parachute technology and design.

For the first time, Sandia was the site this month for secretaries from around the state to take an examination that — if passed — qualifies them for Certified Professional Secretary (CPS) status. Fifteen people, including some Sandians, took written tests in six subject areas (behavioral science, business law, economics and management, accounting, office administration and communication, and office technology). "This is the first time that New Mexico secretaries took the CPS exam in an industrial setting, rather than at an educational institution such as UNM," says Soila Brewer (3533), Sandia CPS examination coordinator. PSI [Professional Secretaries International] coordinates the CPS testing program. Betsy Tweeten of UNM's Dept. of Technological and Occupational Education was test proctor. Helen Richardson, test administrator in Personnel and General Employment Div. 3533, assisted her. Sandia conducts classes to help people prepare for the CPS exams; more info available from Sue Henderson (3700) on 4-8002.

CATCH THAT SUN, QUICK! Carl St. Remy (from the Bahamas) was only one of eight students — all foreign nationals — from the Armand Hamner United World College, Montezuma, N.M., who toured Sandia's Solar Power Tower and the West Photovoltaics Test Facility two weeks ago. As luck would have it, Albuquerque was cloudy all day.



(Continued from Page One)

Probing the Earth

rock, were removed relatively intact by the diamond-tipped drill bits. The result was that 98 percent of the rock was recovered.

One outfit important to the success of the well was Utah-based Tonto Drilling Services. It developed equipment "on the fly," says Peter, "making equipment to field specifications and then supplying it within 24 hours."

Core samples from the Sulfur Springs well are already providing data to scientists interested in how minerals were laid down in the earth. Jeff Heulen of the University of Utah Research Institute is examining how hydrothermal systems deposit copper, zinc, lead, and molybdenum.

What Fraser has learned initially about the well is that Sulfur Springs "has a fracture in the rock at 800 feet that's filled with steam, carbon dioxide, hydrogen sulfide, and numerous elements in solution. Below that, there are fracture zones filled with liquid water at about 200 degrees C."

The scientists are looking for such hot underground ponds (thermal aquifers) by charting temperature changes in the wellbore with a nail-size, platinum-tipped "electronic thermometer." As Bob Meyer explains it, "The device reads changes in electrical resistance at the tip. Because there is a known relationship between resistance and temperature, the platinum effectively signals temperature differences in the well fluid. We're looking for lower temperatures, where the well fluids would've temporarily cooled off a liquid reservoir." Aboveground computer and printer hookups allow a running record of temperature vs. depth as the thermometer is lowered via logging cable down the wellbore.

The Sulfur Springs well is "the most difficult one thus far" in the GRDO series, Peter adds. "That's because there are steam vents 150 feet away, with boiling acidic fluids coming out of them. The drilling fluids [cool water with clay and viscous lubricants added] that were put into the well [to cool the bit and wash out the drilled chips] could've backed up, spewing out as a geyser. All the additives would've made the fluid stick to the skin." Just in case, Peter not only installed blowout prevention equipment, but also readied a stock tank so drill operators could simply take a quick dive into clean water.

Also, since noxious volcanic gases are present in the area, a seven-sensor gas alarm was designed and installed by Don Parker, Ray Rivera, and Brian Kelly (all from 3311).

The well has already been logged several times, and will continue to be studied every two weeks until about Christmas. By then, the scientists will have a good idea where the fluid production zones are. Further plans are to perforate the casings and "flow the well" — let the hot water and steam flood the hole up to the surface. The nature of the fluid will then be studied by geochemists.

JOIDES Resolution

To improve instrumentation for geothermal research and thereby accelerate work toward the GRDO goal, Peter has also become acquainted with ocean drilling. He hopes to combine that technology with the light and inexpensive diamond-coring technology borrowed from the mining industry.

A year ago, he spent almost two months in the Norwegian Sea on a research ship, the 470-ft.-long *JOIDES Resolution*, named for the Joint Oceanographic Institution for Deep Earth Sampling. The drillship — containing a seven-story laboratory stack and a derrick that towers 200 feet above the waterline — is part of the Ocean Drilling Program (ODP). This program is an international venture funded by the U.S. (NSF-sponsored research, managed by Texas A&M University), Canada, France, Japan, and West Germany. Twelve thrusters can hold the ship stationary over the drill site. And the rig reaches water depths of up to 27,000 feet.

(Continued on Next Page)

All's a Well

That Ends As a Well

Six GRDO Projects In the Works

- Three years ago, the first geoscientific well was drilled by GRDO into Obsidian Dome for igneous petrologist John Eichelberger (1543). Overseen by Peter Lysne (6242), this project tackled the northernmost volcano in the Inyo chain of lava domes at Mammoth Lakes, Calif. The research drilling campaign was on its way.

Here, the geoscience community had its first harvest of scientific data on the geothermal regimes of the continental crust. The studies encompass the roots of hydrothermal systems, mineral deposition, rock-water interactions, and stability of earth formations.

The following fall, two wells were slanted into the Inyo volcanic "plumbing system," including the conduit and the rocks surrounding it. Use of continuous coring (as opposed to rotary drilling, which allows digging deeper holes, but unfortunately crushes all the rock) allowed extraction of basic scientific data from the intact samples of rock brought to the surface.

This field experiment tested a not-so-popular hypothesis that 600 years ago a single "dike" — a vertical crack — had fed magma to what is today a string of lava domes and explosion pits of the Inyo chain. (Many scientists thought that the domes were fed by individual channels.) The now-solidified dike was found buried underground in the predicted location beneath the Inyo chain.

Another drilling of the Inyo dike is scheduled to start next summer.

- The second drilling effort was done offshore in Salton Sea, Calif., for a LLNL-led research program. "A set of 19 shallow wells — about 250 ft. below the seafloor — was drilled last year, despite hellacious storms and terrible pollution," says Peter. As a result of the thermal profile obtained, he continues, "LLNL's Lee Younker, Paul Kasameyer, and Robin Newmark are now able to build better [computer] models of the geothermal resource in the Salton Sea area." One estimate is that the site contains 600-degree F reserves of fluid at about 6000 ft.

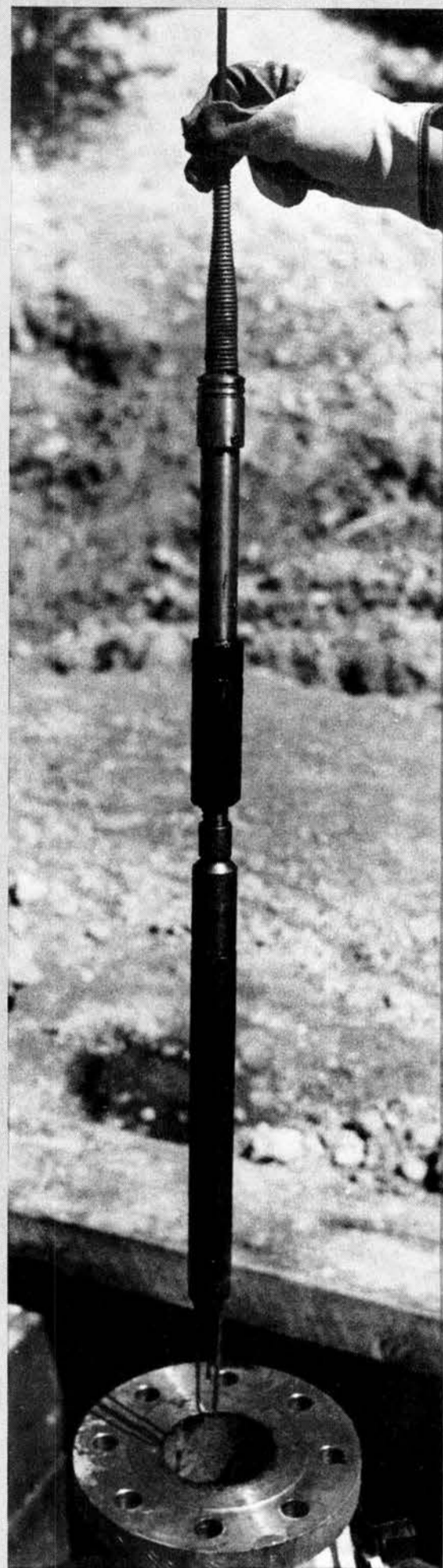
- Last June, another well was drilled by Sandia at the southern end of Mammoth Lakes for Lawrence Berkeley's Hal Wollenberg. Leadership of this operation, called Shady Rest, was provided by Lew Bartel (6242).

Temperatures in this well were surprisingly high, nearly 200 degrees C. Wells such as this may provide a source of space heating for the city of Mammoth Lakes — an option that inspired financial support for the project by the state of California's Energy Commission.

- The current project, Sulfur Springs in the Jemez mountains of NM, has just been completed this month for LANL's Fraser Goff (see "Probing the Underbelly of the Earth").

- On the drawing board is the Katmai series of wells in Alaska's Valley of 10,000 Smokes, again for John Eichelberger. These wells, constituting another step toward the GRDO goal of reaching deeper and hotter fluid reservoirs in the earth, will this time pierce a volcano still in its infancy. The last explosion occurred only 74 years ago. (Katmai was then the Mount St. Helens of its era, "the greatest spewer of all," and left nearby Kodiak Island completely dark for three days and nights.) So it's a good place to collect data to complement those from other, far older (geologically) sites.

But the Katmai project is a logistics challenge. It requires building — and staffing — a drilling



PROBE is taken out of the Sulfur Springs wellhead. The logging instrument itself (located inside the protective cage) takes up only a fraction of an inch of the tip. Downhole, the 200 degree C water shows how the serenity of the Jemez is only skin-deep.

camp (inhabitable for two months out of the year) and setting up a drilling operation in a place accessible only by helicopter.

Before work can proceed, a cost analysis and a technical assessment need to be made. Peter and John visited Katmai in mid-October to spot-check the site.

- Also in the planning stage is a 2-km.-deep (about 1.2-mi.) well, for LANL's geologist Jamie Gardner, to be cored just up the hill from the current Jemez site.

"This one will be a real drilling challenge," says Peter. "We'll be drilling through Bandelier tuff — rock making up the formations where cliff dwellings are found — and expect to find a temperature of 300 degrees C at the bottom of the hole. It'll be hotter than anything anyone has diamond-cored before."

Probing the Ocean

"We drilled into an old volcanic system half-way between Iceland and Norway at the Arctic Circle," Peter says. "We were looking at seismic reflectors, discontinuities in the earth's crust that act as bounce zones for sound waves — such as those emanating from the air guns towed behind the *JOIDES Resolution* as it steamed between harbor and station. The reflectors turned out to be a series of basalt flows not that different from the basalt flows we found in the Inyo project" (see "Six GRDO Projects").

Peter oversaw the logging part of the program on board the ship. "I had to make sure that the proper logs were run, that the tools were calibrated, and that the measurements were analyzed," he explains.

"Measurement of porosity [sponginess or amount of holes] is most important in sedimentary formations, areas where oil and gas are found," Peter continues. That type of data can answer questions about where there is fluid flow and whether there are fluid reservoirs in the ground. Now porosity measurement in igneous formations — volcanic rock — has also become important from both scientific and geothermal energy production standpoints.

Neutron logging — a weapons tie-in to Sandia's earlier work — is an important part of the downhole measurement program conducted on board ship. Up to now, calibration of neutron logging systems has only been accomplished for porosity measurements in sedimentary rocks. The idea now is to make the system work for volcanic rock as well. Peter will take calibration samples of basalt to Idaho National Engineering Lab, to measure the rocks' neutron response in a small nuclear reactor. The results should be ready by next year. ●ID

Site's History Spans Coronado to Howard

Landowner of Hot Springs Site

Long-haired John Corbin is the current owner of the site containing nature's caldrons — Sulfur Springs — at La Cueva. The former Colorado mountain man bought the 40-acre site in New Mexico two years ago because, as he puts it, "it's a spot isolated enough for me to be able to walk around at 4 a.m., stark naked, playing a bagpipe" for an audience of black bears and elk.

The site, pitted with fizzy sulfur pits and fuming smoke-holes (fumaroles), has a long history, long enough to be peppered with both fact and fiction.

As far back as 1544, Coronado's men reported on the land's sulfur samples; John says he found some of these records in the Albuquerque Public Library. "Then in 1594, four years before he founded Española, Oñate came to the area," John says. "Later there were scattered visits by Indians from Jemez Pueblo and by missionaries."

By 1884, an early entrepreneur named John Walton claimed a hilltop site as a sulfur bank. In the mid-1890s a sulfur plant was built there by Mariano Otero, who operated it as a mine into the 1900s. During World War II, sulfur was again mined there, this time for use in gunpowder and rubber.

The nature of the site changed in the 1920s, says John, "when a spa was built, and was said to attract people like Al Capone, who may or may not have come here to be cured of tertiary syphi-

lis. If he did, it didn't work; that's what he died of.

"In the 1930s, hot springs were all the rage," he continues. "Earl Culler built a bath house and a hotel. People came from all over the world to dunk their feet in the bubbly water."

A Texan family named Cospier took the next turn at landowning, followed by UNM football coach Bill Mondt, who had intended to establish a sports camp there. He left UNM, and the project vaporized.

Then came John, for whom the adventure hasn't ended. One day about a year ago, John says, "the FBI came by looking for Ed Howard," the Santa Fe-based Soviet spy. "Apparently, Howard had left some sort of map with a circle around the hot springs site." John still hasn't figured out what that circle signified.

But the greatest excitement may come in five years, when John "inherits" the Sulfur Springs well from the research group and incorporates it into his own makeshift energy supply system. While they fix up a cabin on higher ground, John and his four children are living in a trailer across a large sulfur pit from the well. The cabin is already serviced by some geothermal heat provided by a heat exchanger. John fetches his hot water from a little spring below: a back-up system in case the single electrical line coming into his property ever fails.

More Than a Plane Inventory

Retiree Tracks Down Warbirds

Somehow, retirement wasn't as involving as John Colp had imagined it would be. Oh, he traveled with his wife Martha, mostly to fly-ins and air races. He read books, all the ones he never had a chance to dig into in his 25-plus years at Sandia.

But it wasn't much fun — until his wife came up with a purpose: to compile a directory of restored WW II-type aircraft in the U.S.

Now his travel trailer contains a microcomputer, microfiche reader, and a mess of files, and he's happy. He's got new expertise, and his work is eminently publishable. He can go where the warbirds are, even if he logs 45,000 miles a year getting there, and meet a whole bunch of new people that are just as nuts about those planes as he is.

It's a whole new subculture for John. But his interest goes back to his early days as a farm boy in southern Illinois. He had been indelibly impressed by one event: Lindbergh's solo flight across the Atlantic. "From then on, I knew I didn't want to be a farmer," he recalls.

Later on, when he went into mechanical engineering at the University of Illinois, he took all the aeronautical courses he could find. During WW II, he was a design engineer for Douglas Aircraft. Then leadman on the SBD (a dive bomber) for the Navy. "Only seven SBDs are in existence today, and only one is flying," he says.

Turning Over a Fly-Leaf

"The directory won't be a picture book or a storybook," he continues, "and it's more than a simple inventory." It will be a complete list of individual fighters, bombers, and liaison planes, and each one's manufacturer, model, condition, and (military) colors. And it will show the planes' locations for nostalgic people who'd like to see a special model. Do you want to know where the nearest B-52 is? Right



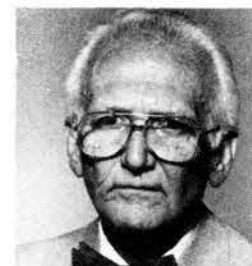
THIS 'GRASSHOPPER' model of a civilian Piper Cub converted into a military liaison plane (L-4) for artillery spotting during WW II was built by Bill Laskar (ret., on right). The model's nine-foot wingspan normally requires storage in the garage or den — or both. Cataloguer John Colp (ret.) is on the lookout for the real thing.

across the street from Sandia at the National Atomic Museum. And how about a flying P-38? In Mercedes, Texas. P-51 Mustangs? All over — "There's more P-51 Mustangs [fighters] flying today than anytime since '46," John says.

"Planes are out there by the thousands," he concludes. "My estimate is that there are about 4000, and half of them are still flying today. A lot of them aren't in museums and aren't even registered; they're kept privately. There are farmers who'll have a warbird stashed away in a barn somewhere." Those are the ones John really wants to get at.

And when the book comes out — sometime next year, he hopes; he's three-quarters done now — there's still more to do. "I can revise it," says John, tongue not in cheek. ●ID

Death

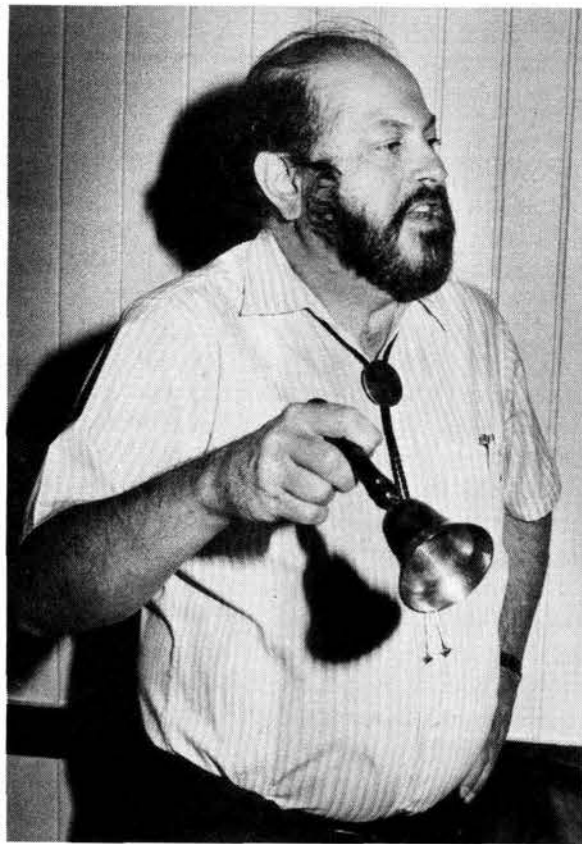


WILSON BOTNER (1632)

Wilson Botner of Parachute Systems Division 1632, died suddenly Nov. 2. He was 63 years old.

Wilson had been at the Labs since June 1956 as a member of the technical staff.

He is survived by his wife Rachel (3726) and two sons.



CHAIRMAN AL IACOLETTI (2614) uses a bell instead of a gavel to maintain order at meetings of the Friendly Philosophers Club.

Members Have 'Tough Hides'

Group Tackles Timely Topics

Evolution vs. creation, right-to-choose vs. right-to-life, the nature of truth, Satanism, AIDS, homophobia: thought-provoking (and sometimes controversial) topics all. And they've all been grist for the mill known as the Friendly Philosophers Club, a discussion group formed ten years ago by Sandia retiree Carl Hawk.

The club, chaired for the last three years by Al Iacoletti (2614), gets together every other Monday night to hear speakers launch their ideas on a variety of subjects. Rousing discussions among club members always follow the program. Every fourth meeting, there's no speaker; this gives club members an opportunity to pursue timely topics and late-breaking news.

"Instead of a gavel, I have a bell," says Al. "The bell has no special significance, but it's a good way to get everybody's attention. Sometimes, during an especially lively discussion, it's the *only* way to get attention from this bunch of individualists!"

Al describes club members as having "tough hides." They're not afraid to express their own ideas and throw them open for scrutiny. "Club members are not typical of the general populace," says Al. "Too many people think superficially, because it can be painful to explore serious topics in depth — and it is painful to have one's ideas shot down. It's much easier to assume something is true and not think about it. Reality can be unpleasant."

Carl Hawk had that in mind back in November 1976 — a year after he retired — when he ran a short newspaper ad to determine if there were people out

Asked what he gained from philosophy, he answered, "To do without being commanded what others do from fear of the laws."

—Aristotle, by Diogenes Laertius (circa A.D. 200)

there who wanted to discuss a variety of topics in a serious manner. "I also had a hidden agenda," admits Carl. "I always wondered if I could lead a group of that type, so I wanted to give it a try. I remember thinking, when 22 people showed up for the get-acquainted meeting, 'what'll I do with all these strangers?' Anyway, it all worked out, and the Friendly Philosophers Club was born."

Carl's pleased that the club has continued to grow. "I want it to live on," he says with a smile. "You know, monuments aren't necessarily made of stone."

Club membership is as varied as the topics that the group tackles. It's a cross section of people from all walks of life: teachers, store owners, Sandians, even a "token beekeeper," in Al's words. Many religious views are also represented: Christianity, Judaism, Unitarianism, atheism. Between 20 and 40 people show up for meetings, with a core group of about 25.

"We don't care what people do for a living or what religious beliefs they hold," notes Al. "We welcome anyone who wants to explore serious and sometimes controversial subjects in depth, and who's not afraid to express his or her opinion — even though it might not jibe with that of the person sitting in the next chair. The basic thread among members is the belief that no idea is so sacrosanct that it can't be analyzed."

"I enjoy this group because I come away from

meetings feeling relaxed and yet mentally stimulated," Al continues. "I prefer the conflict of ideas to physical conflicts. The value of these discussions is self-examination; we learn to know ourselves better — what makes us tick. As individuals, we often have

What is the first business of one who studies philosophy? To part with self-conceit. For it is impossible for anyone to begin to learn what he thinks that he already knows.

—Epictetus (circa A.D. 60)

values that are mutually exclusive; they just don't fit together very well. Then we have to determine our priorities. The Friendly Philosopher discussions help me sort out some of that."

Al is especially interested in observing how people react to various arguments, and seeing what it takes to convince them that a conclusion is valid. "You would think that rational people would come to essentially the same conclusions, given sufficient information, but that's just not the case," he says.

Al has come to some pretty definite conclusions himself. Among them:

- Our educational system is woefully inadequate. It doesn't teach people to examine their ideas for validity, and to make judgments about their thoughts, values, and motivations. There's no attempt to teach people to analyze themselves, to make them ask: Do I believe a certain idea because it gives me a warm, secure feeling, or because I've pitted it against alternatives and have realistically assessed it?
- I see nothing that precludes computers from eventually achieving or exceeding the level of human intelligence — nothing that precludes thought from being mechanized. Intelligence is basically manipulating symbols, recognizing inherent analogies [pattern recognition], and making appropriate responses in various circumstances. Computers have to be programmed, but humans are too; that's what culture and genes do. Ultimately, artificial intelligence will be a significant factor in the everyday business of life.

Discussion, Not Debate

If you'd like to challenge Al on a few of his thoughts, the way to do it is to show up sometime at a meeting of the Friendly Philosophers. "We don't debate — we discuss," says Al. "We look at each other's ideas in an attempt to determine which of them are simply a matter of taste, which come from principles learned long ago (and what those values are), and which are in some sense acquired. We also make a strong distinction between that which is legal or illegal and that which is right or wrong. Both are legitimate considerations, but they're distinct."

As noted, the Friendly Philosophers meet every other Monday night. (Their next meetings are on Nov. 24, a discussion night on literary passages, and on Dec. 8, a speech on personal sexual concerns and philosophies.) This no-dues group gets together at the Bonanza Family Restaurant, 5717 Menaul NE. Meetings start at 7 p.m. and stop at 9 sharp, according to Al (and he has a bell to make it happen!). ●PW

Welcome

Albuquerque

Richard Gassman (2152)
Jay Huttenhow (7251)
Gary Tipton (2131)

Indiana

David Beutler (1232)

Nebraska

Janice Uden (7222)

Texas

Shannon Spires (5268)

Fun & Games

Running — Enter the Albuquerque Architecture Tour Fun Run and see the sights of Albuquerque. This event, sponsored by the Albuquerque Chapter of the American Institute of Architects, takes off at Civic Plaza at 10 a.m. on Nov. 23. The course features a significant list of notable architecture in the downtown and country club areas and ends back at Civic Plaza. All entrants receive a commemorative T-shirt, refreshments, and a brochure describing all featured architecture. There will also be drawings for prizes. Proceeds of the fun run go to benefit the UNM School of Architecture and Planning. Entry forms are available at all sporting goods stores and at the AIA office (67 First Plaza Galeria). The entry fee is \$8/person or \$10 on the day of the race.

Muzzleloading — The annual Muzzleloader Turkey Shoot sponsored by the New Mexico Mountain Men will be on Nov. 23, starting at 10 a.m. at the Albuquerque Shooting Range Park. (Take I-40 to the top of 9-Mile Hill, take Exit 149, and follow the signs.) The proceeds (at \$1 a match) will go to the Anne Pickard Convalescent Hospital. Frozen turkeys will be awarded to the winners of a variety of novelty matches. If you've never entered a muzzleloading match, come on out and give it a try. It's informal and lots of fun. Also, bring your camera because these mountain men are a colorful clan. For more information, call Max Marrs on 281-9889.

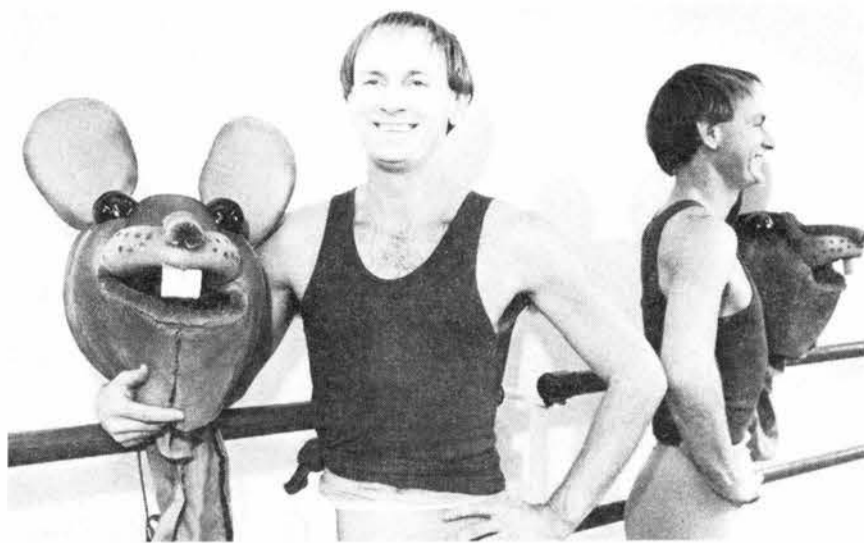
Football — Attention Buckeye and Wolverine alumni! The OSU Alumni Club of New Mexico is sponsoring an OSU-Michigan party on Nov. 22 at Confetti's — big screen TV, lunch at halftime, and all the fight song music you can stand. For more information, call Ken Fryman on 823-2550, Jerry Vance on 294-1141, or Suzanne Beers on 892-2630.



DAVE DOLAN (2612, standing — center) spoke on totalitarianism at a recent meeting of the Friendly Philosophers. Al Iacoletti (2614, standing — right) has the job of making sure everybody has a turn during the discussion period.

Events Calendar

- Nov. 21-22 — 25th Annual Arts & Crafts Fair, ASUNM Crafts Studio; 10 a.m.-8 p.m., UNM Student Union Ballroom, 277-6544.
- Nov. 21-23 — NM Hunter-Jumper Show, 7:30 a.m.-6 p.m., Horse Arena, NM State Fairgrounds, 865-1175.
- Nov. 21-23 — "Follies" by Stephen Sondheim, the College of Fine Arts 50th anniversary celebration, presented by UNM Theatre Arts and Music departments; 8:15 p.m. (2:15 p.m. Sun.), Popejoy Hall, 277-3121.
- Nov. 21-23 — Indian National Finals Rodeo, Tingley Coliseum, NM State Fairgrounds, 265-1791.
- Nov. 21-30 — "Fool for Love" by Sam Shepard, NM Repertory Theatre production; 8 p.m. Tues.-Sat., 2 p.m. matinee Sat. & Sun.; KiMo Theatre, 243-4500.
- Nov. 21-Dec. 7 — "New Mexico Tapestry, Images of Our Own," paintings and sculptures by New Mexico artists; 1-4 p.m., Fine Arts Gallery, NM State Fairgrounds, 265-1791, ext. 228.
- Nov. 21-Dec. 12 — "Waterworks," juried watercolor exhibit by the NM Watercolor Society; 9 a.m.-6 p.m., Thompson Gallery, UNM Union Bldg., 277-2331.
- Nov. 21-Dec. 12 — "Earth and Fire, an Elemental Art Show" by Sue McQueen; 7:30 a.m.-10 p.m., Union Gallery, UNM Union Bldg., 277-2331.
- Nov. 21-Dec. 14 — "Richard III," Shakespeare's tale of murder and betrayal for power; 8 p.m. Fri.-Sat., 6 p.m. Sun. (performance with an interpreter for the hearing-impaired, 6 p.m., Nov. 23); Vortex Theatre (Buena Vista & Central), 247-8600.
- Nov. 21-30 — Albuquerque United Artists Maya Twist, an invitational show in the spirit of the Maya ancient civilization; Albuquerque Public Library, 243-0531.
- Nov. 21-Dec. 31 — Exhibit, "From the Weaver's View: Indian Baskets of the American West"; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat.; middle gallery, Maxwell Museum of Anthropology, 277-4404.
- Nov. 21-Jan. 5 — Exhibit, "Tiger, Tiger," photographs of animals of India; 10 a.m.-5 p.m., NM Museum of Natural History, 841-8832.
- Nov. 21-Feb. 2 — "Maya, Treasures of an Ancient Civilization"; 11 a.m.-5 p.m. Tues., 1-9 p.m.



ARE TWO HEADS BETTER THAN ONE? Pictured in one of his costumes is John Shelnett (6254), participating for a fourth year in the Southwest Ballet Company and NM Symphony Orchestra and Chorus production of Tchaikovsky's "Nutcracker." John also appears as a parent in the Christmas party scene. Performances are Nov. 28-30 at Popejoy Hall; 7:30 p.m. Fri.-Sat., with 2 p.m. matinees on Sat. & Sun.

Wed., 11 a.m.-9 p.m. Thurs.-Fri., 10 a.m.-5 p.m. weekends; Albuquerque Museum, 243-7255 or 242-4600.

- Nov. 22 — Annual Arts & Crafts Fair, 9 a.m.-6 p.m., Jackson Mid School gymnasium (10600 Indian School NE).
- Nov. 22 — "Folk Music Jam," presented by the New Mexico Folk Music Society; 8 p.m., Heights Community Center (823 Buena Vista SE), free.
- Nov. 22-July 31 — Exhibit, "Maya: The Image from the Western World"; 9 a.m.-4 p.m. Mon.-Fri., 10 a.m.-4 p.m. Sat.; main gallery, Maxwell Museum of Anthropology, 277-4404.
- Nov. 23 — Sinfonietta concert, New Mexico Symphony Orchestra and Chorus, Brandenburg Concerto No. 3; 3 p.m., Simms Auditorium, Albuquerque Academy, 842-8565.
- Nov. 23 — Film: "Black Orpheus," legend of Orpheus and Eurydice in a setting of Carnival in Rio de Janeiro; 7 p.m., KiMo Theatre, 848-1374.
- Nov. 24 — Fall concert, UNM Percussion Ensemble; 8:15 p.m., free, Keller Hall, 277-4402.
- Nov. 28-30 — Albuquerque Arts & Crafts Committee Show, Exhibit Complex, NM State Fairgrounds, 831-8715.
- Nov. 29-30 — Senior Arts and Crafts Fair, 9 a.m.-4 p.m., South Exhibit Hall, Convention Center, 768-4575.
- Nov. 30 — Images of Women in the Movies Series: "Harold and Maude," sponsored by Vista Sandia Hospital; 6 p.m., KiMo Theatre, 823-2000.
- Dec. 5-6 — Annual Holiday Bazaar, 10 a.m.-4 p.m., Sandia Preparatory School gymnasium (520 Osuna Rd. NE), 294-4405.



SUSAN AND GARY KELLOGG (1134) DANCED their way into first place in the Texas Two-Step dance competition at the 3rd Annual National Country Western Dance Festival in Reno on Oct. 10-12. They also took second place in the Western Waltz competition and finished second overall in the Grand Championships. Susan and Gary competed in the Division II category (amateur) against 80 couples from all across the country. When they're not competing, they dance with a local performing group, the "Mike Haley Kuntry Kickers."



Favorite Old Photo

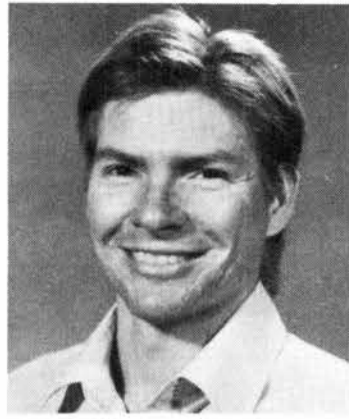
Under the lamppost and wearing a mustache is my dad, Chris Alexis Stathis, or, more precisely, ΧΡΗΣΤΟΣ ΑΛΕΞΙΟΥ ΣΤΑΘΑΚΟΠΟΥΛΟΣ (that is, Christos Alexiou Stathakopoulos). The year was 1910, the city was Memphis, and the group was the local Greek community plus a Chickasaw Indian [back row, left] who must have been a friend of someone in the photo. Note too the Boy Scout in knickers and the priest in the front row. Dad was 25 years old and had come to this country five years earlier after completing his military obligation in Greece. When this photo was taken, he was working for his first cousin, my Uncle Milton [third from left], who ran a confectionery and ice cream business in Memphis. Unlike most Greeks of the time, Dad didn't end up running a restaurant, but he came close: He ran a restaurant supply company — coffee, canned goods, spices, sugar, etc.

—John Chris Stathis, 2632

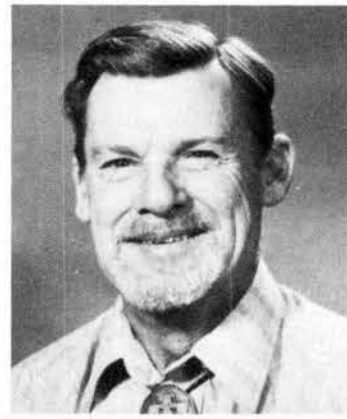
MILEPOSTS

LAB NEWS

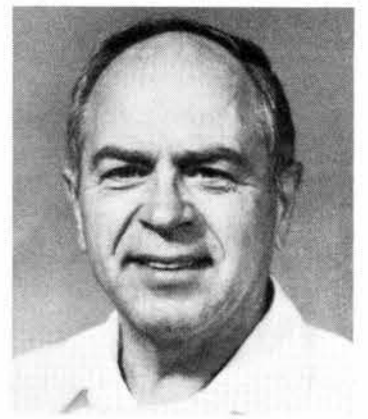
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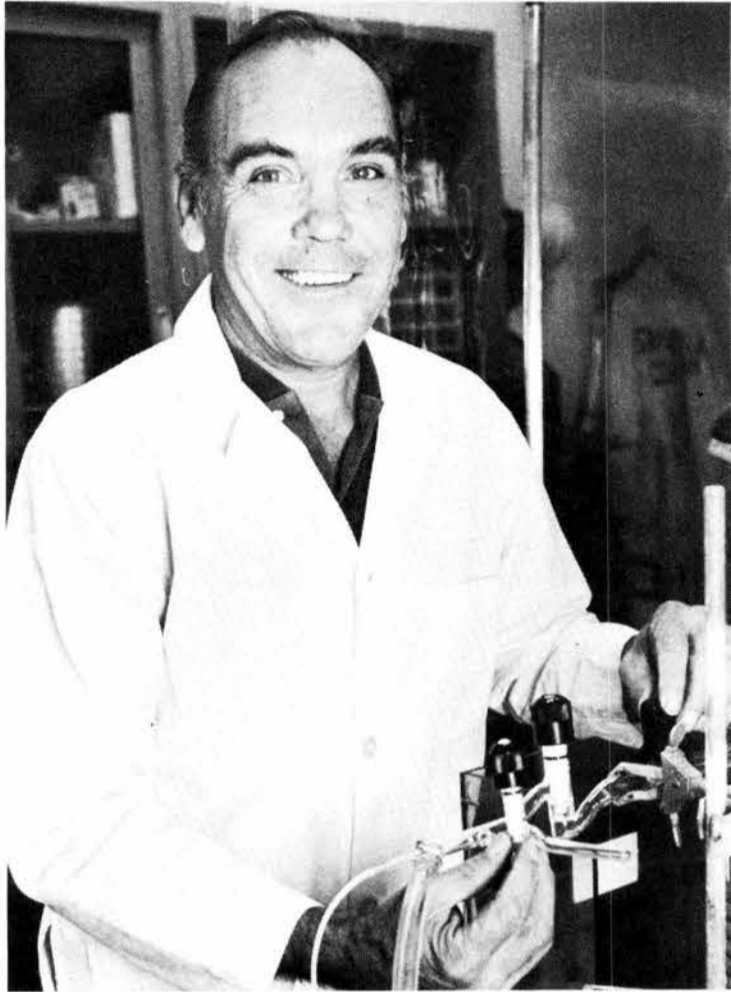
Dan Pritchard (5238) 10



Leonard Hitchcock (5152) 30



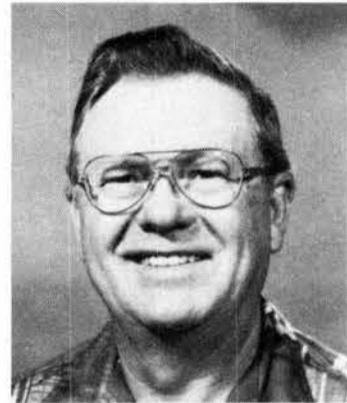
Don Mackenzie (1554) 30



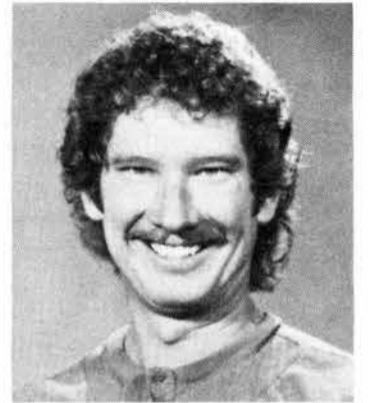
John Smatana (1831) 30



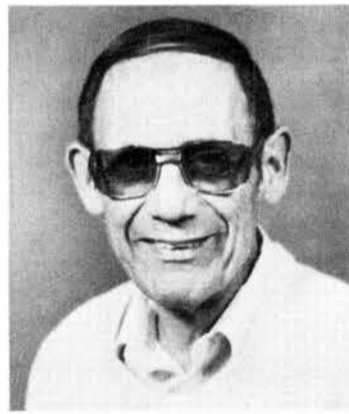
Fran Paulos (3533) 10



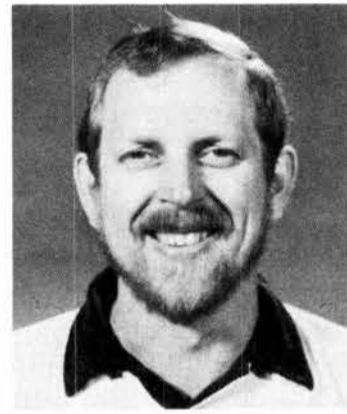
Melvin Johnson (7535) 30



Bob Barton, Jr. (3742) 10



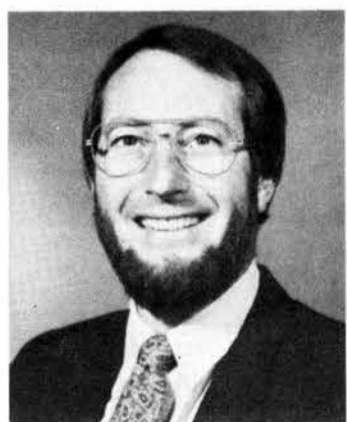
Bernie Kenna (5248) 25



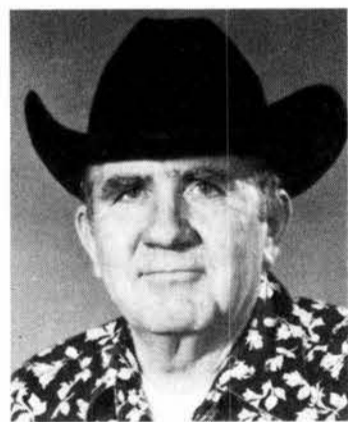
Sig Schneider (5217) 10



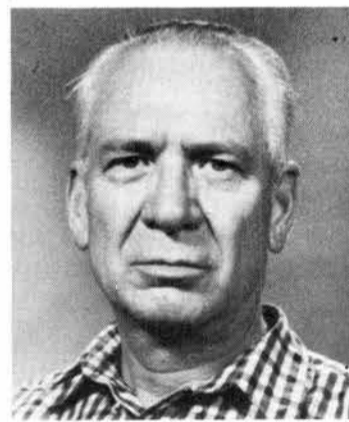
Howard Thomas (2124) 25



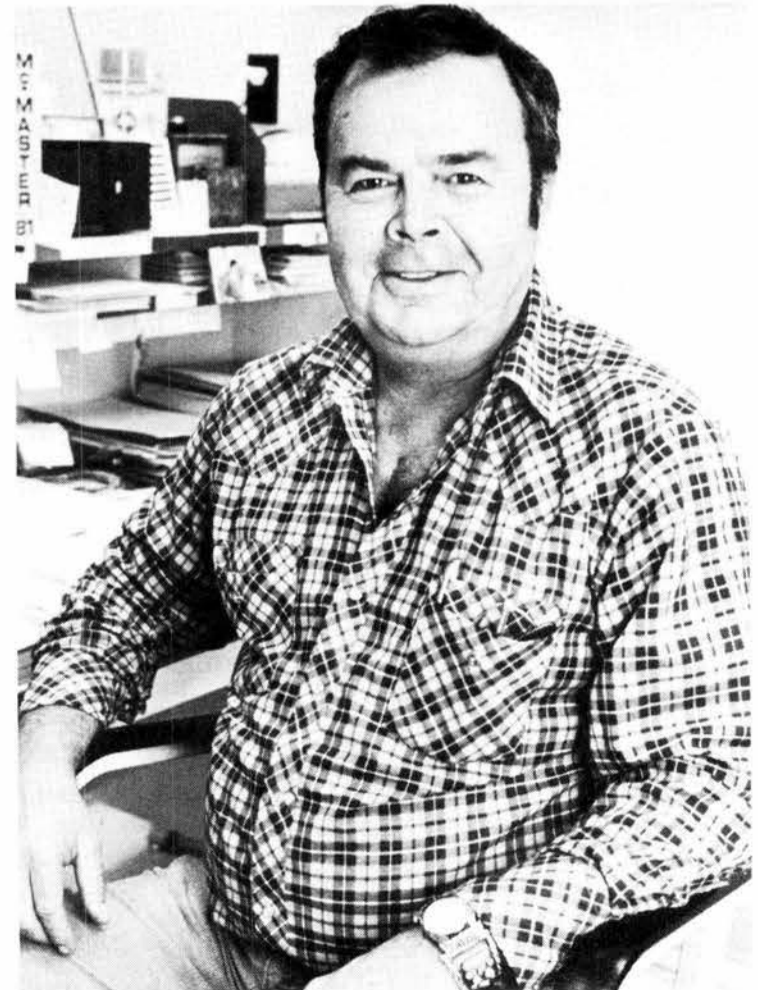
Ric Davis (5263) 20



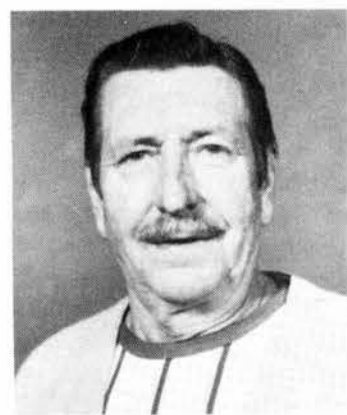
Cliff Kinabrew (7116) 30



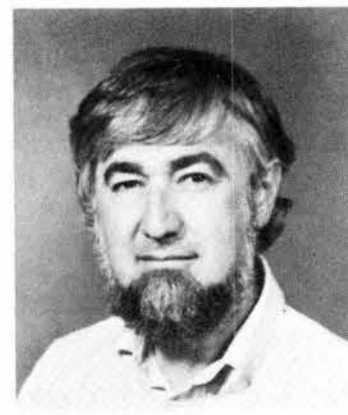
Thaddus King (2543) 35



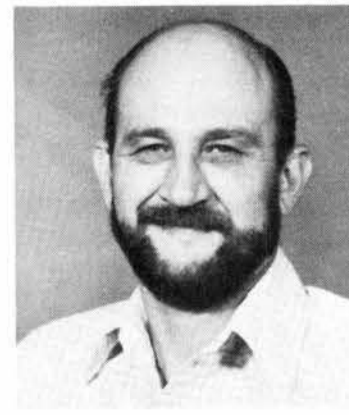
Jim Reid (5257) 30



Howard Shaw (3428) 15



Dick Kromer (311) 20



Paul Spencer (2341) 30

Answers to Spelling Quiz

a, B, c, d, e, f, G, h, i, J, k, L, m, N, O, p, q, R, S, t

Accuracy in Media



Journalists always get it wrong, right? Not necessarily, say the scientists who act as experts for the Scientists' Institute for Public Information in New York. The institute runs a Media Resource service that puts journalists in touch with scientists who can answer their questions.

It recently asked 112 scientists what they thought of the journalists' use of their expert advice. Ninety-three percent felt that the journalists had accurately reported the information they had provided; 97 percent found that the journalists had asked relevant questions.

New Scientist



TOP SANDIA COED softball league team this season was the Sandia Troopers with a 12-2-2 record. Team members shown are (from left, back row) Kevin Schroder (8432); Joe Damico (8351); John Didlake (8163), who had the highest batting average for men; Grace Delgado (8444); and Dave Dannenberg (8153). Middle row: Al Stroupauer (8163), who stole the most extra bases and had the most RBI's; Julie Ann Mitchell (a spouse); Gale Hudson (8163); and Frank Bielecki (8173). Front row: Jay Peterson (8186); Danny Mitchell (8163); Laurie Farren (8262); and Glenda Ross (8182), who held the highest batting average for women. Also on the team but not pictured are Neil Lapetina (8152) and Rich Delgado (spouse of Grace).

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to Div. 3162.

Ad Rules

1. Limit 20 words, including last name and home phone.
2. Include organization and full name with each ad submission.
3. Submit each ad in writing. No phone-ins.
4. Use 8 1/2 by 11-inch paper.
5. Use separate sheet for each ad category.
6. Type or print ads legibly; use only accepted abbreviations.
7. One ad per category per issue.
8. No more than two insertions of same ad.
9. No "For Rent" ads except for employees on temporary assignment.
10. No commercial ads.
11. For active and retired Sandians and DOE employees.
12. Housing listed for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

TWO CERAMIC "SUNSET" LAMPS, 3' high, earthen design, bamboo shades, originally \$180/ea., sell for \$175/pair OBO. Tecumseh, 881-5021.

COMMODORE-64 w/cassette and some software, \$125; AR-7 Explorer .22 cal. semi-automatic survival rifle w/scope and cleaning kit, \$100. Finley, 247-8924.

TRAVEL TRAILER, 14' Cavalier, stove, ice box, heater, \$1600. Schwoebel, 298-4295.

SKIS, new K2195 w/Tyrolia 360 racing bindings; Nordica size 12 boots, poles, used twice, \$250. Foster, 299-6240.

APPLE IIe w/monitor, stand, joystick, lots of software, \$1200 OBO. Bennett, 883-1651.

WOOD-BURNING STOVE, Schrader, airtight, \$275; truck tire, 7.00 x 15, \$15. Wilcoxon, 296-8295.

CAMERA: Pentax K1000 35mm w/Pentax 50mm and 80-200mm zoom, Tokina 24mm, Kako flash, UV filters, cases, \$290. Barr, 821-5870.

S&W 357, 686, \$290; 2 P185/80R13 tires, \$30; range hood, \$25; front door, \$75; answering machine, \$100. Erickson, 294-8073.

TIRES, Delta 7.50 x 16, 8-ply, tube-type, bias-ply, highway, w/tread, no breaks, \$20/pair. Perdreauxville, 296-2870.

TRAVEL TRAILER, 13' Cardinal, \$1800. Brooks, 296-6870.

TWO MOTORCYCLE HELMETS, Bell Magnum, 7-3/8" and 7-1/2", \$30/ea. Wright, 296-3850.

MOTORCYCLE COVER, vinyl-covered canvas, for motorcycle without windshield, fairing, or sissy bar, \$12. Schkade, 292-5126.

JASON TELESCOPE, 455 power, 3 high-power lenses, tripod, extras, \$285. Gallegos, 299-7333.

TWO BRIDESMAID'S DRESSES, worn once, size 6-8. Stephens, 821-7960 after 6.

GOLDEN RETRIEVER PUPPIES, championship bloodlines, born Oct. 26, available Dec. 13, \$300. Brennan, 344-1115.

PLYWOOD, one sheet, smooth on both sides, 48" x 71-1/2". Campbell, 255-

4271.

KING-SIZE WATERBED, 12-drawer pedestal, mirrored headboard, \$350; dual king-size Simmons mattress and box spring set, \$150 OBO. Mayer, 299-8524.

CARPET, 100+ yds., gold shag, \$2/yd.; 7' x 10' oval area rug, \$35. Rudolfo, 821-3460.

TABLE TENNIS: 2 tables, both regulation-size, \$100/official, \$50/non-official. Tippy, 298-3758 after 5 or weekends.

13" RCA COLOR TV, portable, model XL100, \$85. Rainhart, 821-3690.

FIREPLACE SCREEN; bike, needs repair; books: "Encyclopedia of Animal Kingdom," "Nature Library," "Great Ages of Man," more. Kent, 256-1221.

3-CUSHION SOFA, beige Naugahyde; beige platform rocker; occasional chair, dark wood, green cushion. Connor, 268-8718.

ROCKING CHAIR, \$60; recliner, \$30; Pioneer turntable w/Shure cartridge, \$30. Lyo, 299-6470.

DRESSER, mirror, nightstand, headboard, \$300; coffee table, end table, Mediterranean style, walnut-veneer finish, \$100. Helling, 281-5536.

30" RANGE HOOD, Whirlpool model RH4330XL, stainless steel, light and fan, \$55 OBO. Freyermuth, 299-2053.

HUMIDIFIER, console, \$30; matching pair of table lamps, white, \$25. Hendrick, 296-2163.

WATERBED, super-single, complete, \$50. Wood, 275-0094.

ECHO CHAIN SAW, 18" bar, \$175; touch lamp, \$25; Electrovoice 12" instrument/stereo speakers, \$100/pr. Blake, 881-1663.

1940s VANITY, blond wood, 4-drawer w/large attached square-beveled mirror (one corner cracked), \$65. Vigil-Lopez, 242-7001 after 7.

COKIN FILTER SET: 16 filters, instructions, carrying case, cleaning materials, \$100 OBO. Schneider, 299-6243.

CAMPER SHELL, made for short step-side Chev., modified to fit Ford, fully insulated, \$600 OBO. Romero, 897-2690.

HORSE, registered Fox Trotter, bay gelding, \$950. Nielsen, 299-0198.

COFFEE TABLE, pecan wood, \$50; matching square end table, \$25; 4-qt. electric ice cream freezer, used once, \$15. Meyer, 296-9066.

LUMINARIAS, to benefit Albuquerque Youth Symphony, \$4/doz. Miyoshi, 821-9118.

RCA XL100 TV, solid-state 25" console, Jerrold Taco folding antenna, \$175; Pfaff 230 Dial-A-Stitch sewing machine, \$75; 2" Fulton SAE CL2 bumper hitch, \$20. Lackey, 255-6219.

BASKETBALL GOAL, on heavy-gauge metal pole, \$20. Blewer, 268-9019.

WICKER TABLE, w/glass top and 2 chairs, \$75; upholstered chair, \$35. Mott, 822-8143.

PIANO, \$300. Caster, 299-4308.

BEER/WINE-MAKING EQUIPMENT, champagne bottles, Grolsch bottles, capper, primary and secondary fermenters, misc. Dippold, 821-5750.

DOLL CRADLES, hand-made, solid pine, for 18" dolls, \$35/finished, \$25/unfinished; bathroom vanity w/large mirror, \$20; antique brass fireplace screen, \$5; Delco AM/FM radio w/2 new speakers, \$40. Peters, 293-6356.

BABY SWING, \$15; Snuggli, \$15; stroll-

er, infant seat, crib mattress, infant girl clothes. McGee, 299-0661.

PLATFORM ROCKER, \$65; recliner, \$75; pole and vanity lamps, GE canister sweeper, braided rugs. Easton, 256-7717.

CLASSIC GUITAR, w/case, "Federico Garcia, Madrid, Spain, 1957," \$200 OBO. Matsumoto, 293-3462.

HAMMOND SPINET ORGAN, full keyboards, pedals, rhythms, auto-chord, Leslie, w/bench, \$600. Rosborough, 298-3645.

WARDS 19" COLOR TV, \$50 OBO; aluminum storm door, \$10. Mozley, 265-2625 or 299-4204.

SATELLITE RECEIVER, block down-converter, feedhorn w/Polarotor. Flesner, 265-2136.

YARD SALE: fishing, hunting, boating, camping, musical, and household assortment, Nov. 22-23, 10210 Mesa Arriba at Betts NE. Floyd, 293-5789.

GUITAR, Fender Squier Stratocaster, \$200; electric bass, \$40; harmony amplifier, \$75; drafting table, rubber mat, parallel bar, \$250. Perkins, 869-2883.

SKI RACK, SR71 Barrecrefters, used one season, \$50 or trade for SR51. Blackwell, 292-5362.

AQUARIUMS: 20-gal. w/stand, \$45; two 10-gal. w/stand, \$60; 10-gal., \$20; all complete. Mozley, 884-3453 leave message.

CUSTOM DECORATOR MIRRORS, contemporary smoke w/overlay, 48" x 72"; woven-wood shades, neutral 34" x 70", yellow 46" x 70". Tilgner, 821-7551.

REFRIGERATOR, 17 cu. ft., harvest gold, energy-efficient, Whirlpool. Chamberlain, 296-3012.

QUARRY TILE, red, Mexican, unglazed, 8" x 8", have 140, 50c ea.; cat-sized pet carrier, airline-approved, \$15. Roherty-Osmun, 293-8127.

GARAGE SALE: sofa, chairs, daybed, 6-place breakfast set; Nov. 29, 9 a.m.-3 p.m., 3432 Glorieta NE. DeWerff, 298-1029.

HOTPOINT HEAVY-DUTY WASHER, 1-1/2 yrs. old, under warranty, \$200; GE dryer, \$50; Wards side-by-side refrigerator, \$200. Leili, 836-5138.

KING-SIZE WATERBED, complete, \$210. Heifetz, 275-2648.

CAMPER SHELL, insulated, for long bed mini-truck; Victorian (late 20s) sofa and chair. Chavez, 344-0405.

'72 CHEV. FRONT/REAR SEATS, matching carpet, \$125. Still, 883-8159.

TRANSPORTATION

'72 CHEV. SUBURBAN, 4-WD, 350, V-8, PS, PB, AM/FM cassette, new AT and exhaust system, \$2000 OBO. Hawkinson, 281-1281.

'73 MAZDA RX-2, 2-dr. coupe, \$700 OBO. Stuart, 265-7315.

'73 PORSCHE 914, AC, AM/FM cassette, new paint and wheels/tires, \$4800. Schneider, 292-8017 evenings.

'56 CHEV. CLASSIC PICKUP, 4-spd., V-8, needs some work, \$1500 OBO. Swahlan, 292-3598.

'78 BUICK CENTURY, 350, AT, AC, best offer. Still, 883-8159.

'68 DODGE DART, 318, AC, PB, heater, less than 100K miles on original engine. Gabaldon, 266-0028.

YAMAHA YZ-250, \$500 OBO. Anderson, 897-3701.

'78 FORD COURIER, 4-spd., 4-cyl.,

uses regular gas, long bed w/camper, 61K miles, \$2100 OBO. Hollander, 822-0636.

'85 HONDA ASPENCADE GL1200, stereo and CB, \$9000 new, asking \$4975. Collins, 266-5868.

'83 SUBARU STATION WAGON, 4-dr., loaded, 20K miles, under book at \$5000. Lackey, 898-6638.

'79 JEEP WAGONEER, 4-wheel drive, 4-dr., V-8, AT, tilt wheel, luggage rack, heavy-duty hitch. Whitley, 865-4390.

'78 VW RABBIT, AC, \$850. James, 296-2582.

'74 PLYMOUTH VALIANT, 318 w/2 barrels, AT, PS, PB, AC, AM/FM cassette, steel-belted radials, new vinyl top and starter, \$695 OBO. Patrick, 265-4569.

BOY'S BICYCLES: dirt bike, \$70; 24" 10-spd., \$40. Barnard, 256-7772.

'77 DODGE CONVERSION VAN, V-8, regular gas, AT, PS, PB, AM/FM stereo, extras, \$3900 OBO. Romero, 1-864-6254 after 5:45 or weekends.

'77 SUBARU STATION WAGON, 4-wheel drive, runs, best offer. Dumas, 281-2179.

'70 COUGAR, 351 engine, new tires and brake job, \$1500. Zimmermann, 255-7955.

'84 NISSAN 300ZX, 50th anniversary edition, 24K miles, \$12,000 OBO. Bujewski, 881-1192.

'68 FORD MUSTANG, 240/6, 3-spd., hardtop, new clutch and brakes. Starcher, 298-0170 after 5.

'80 FORD F-100, 6-cyl., 302, 4-spd., short bed, step-side, new brakes, clutch, and shocks, 79K miles, \$2800 OBO. Romero, 897-2690.

'81 GMC 1/2-TON PICKUP, loaded, 92K miles; new (at 80K miles) 350 engine, brakes, shocks, tires; w/small, insulated and wired camper, \$4000 OBO. Danclovic, 869-6086.

'76 YAMAHA RD125, street-legal, new tires, \$200. Mott, 822-8143.

'75 CHEV. 1/2-TON, 4-spd., positive traction, new tires, AC, sliding rear window; '81 BUICK RIVIERA, 37K miles, Astro roof, V-6, loaded, transferable 50K miles extended warranty, no-deductible. Arana, 299-1214.

'78 FORD FAIRMONT, AT, AC, 49K miles, 6-cyl., 4-dr., \$1600; '85 Chrysler LeBaron convertible, assume lease w/buy option. Smatana, 292-6548.

'80 FORD LTD, 4-dr., 302 V-8, AT, PS, PB, AM/FM cassette, one owner, \$2995. Thorne, 884-4870.

HONDA TL250/300 trials motorcycle, lights, licensed for street use. McConnell, 268-3109 leave message.

'84 VW VANAGON GL, AC, AM/FM cassette, mini-blinds, \$1000 below book. Hart, 821-1685.

'81 YAMAHA SR500, 3K miles, 90 mpg, w/helmet, \$650 OBO. Matsumoto, 293-3462.

'82 BERLINETTA CAMARO, loaded, power everything, AM/FM cassette, new brakes, tires and wheels 1 yr. old, \$6300. Weber, 268-0344.

'76 MERCURY MONARCH, 2-dr., 3-spd., 200 CID, AM/FM cassette. Rubio, 865-7971 after 5.

'82 CHEV. CAVALIER WAGON, PS, PB, AC, tilt wheel, cruise, 4-spd., rear window defogger, luggage rack, 37K miles, below book. Turner, 292-6819.

'69 DODGE MONACO, V-8, 54K miles, \$1090; '75 Celica, AT, AC, radio, \$1495. Ostensen, 296-4227.

'77 VW Dasher STATION WAGON, 54K miles, 4-spd., \$2500. DeWerff,

298-1029.

'79 KAWASAKI 1000 LTD, black, lots of chrome, \$1525 OBO. Lloyd, 883-5781.

'77 OLDS DELTA 88, 4-dr., PS, PB, AC, Blackwell, 292-5362.

'76 DATSUN B210, 2-dr., stereo w/tape deck, \$1000 OBO. Newman, 299-6018.

'77 VW RABBIT, regular gas, 2-dr., 4-spd., 51K miles, \$1000 OBO. Ledman, 255-6350.

'78 MUSTANG, 4-cyl., PS, PB, AC, sun roof, 2-dr., \$900 OBO. Rudolph, 298-0941.

REAL ESTATE

3-BDR. MOBILE HOME, 14' x 80', 1/2-acre lot, family park in Bosque Farms, assumable loan, extras, flexible terms. Gilbertson, 869-3468.

CUSTOM HOME, 2 master bedrooms, family kitchen, 3-car garage, assumable FHA loan, \$129,000. Collins, 266-5868.

2-BDR. MOBILE HOME in Meadows, Crestline, 12' x 60', 1-1/2 baths, 2 covered patios, porch, washer/dryer, \$6999. Galloway, 822-8336.

2-BDR. '83 MOBILE HOME, 1-1/2 baths, close to van pool stop, \$16,500 OBO. Helling, 281-5536.

1.84 ACRES on county road just outside Ashland, Ore., fishing stream, waterfall, 180 miles to coast, \$26,000. Dye, (702)876-0444.

3-BDR. MOBILE HOME, 2 baths, \$2000/down, \$200/month, will carry contract. Sena, 881-6659.

LAND: R-1 zoned, six half-acre lots southeast of Belen, all for \$800/lot or \$1000 for each separate lot. Sepulveda, 299-2805.

3-BDR. HOME, Chelwood/Copper NE area, 1-3/4 baths, covered patio, backyard access, den, schools within walking distance, \$73,800. Lyons, 293-4188.

4-BDR. BRICK HOME (or 3-bdr. & den), carpeted oak floors, backyard access, near Coronado Center and bus to base. White, 881-1896.

2-BDR. HOME, 1 bath, SW location, 4 yrs. old, sprinklers, dishwasher, disposal, range, vaulted ceiling, fenced, patios, garage, \$51,500. Vaughan, 836-5138.

MOBILE HOME, 1973 Cameron Skyline, 12' x 57', furnished, Valley Park, couples only, \$7600. Rudolph, 298-0941.

WANTED

PET TRANSPORT CAGE, airline-approved, under-seat version, good condition. Hawkinson, 281-1281.

REFRIGERATOR, harvest gold or almond, maximum size 69" x 30" x 27" deep. Wickstrom, 296-8381.

DOUBLE DRESSER without mirror, light finish, good condition. Richardson, 293-4219.

EXERCISE BIKE, Schwinn or other top-quality brand. Villanueva, 296-0970 after 5:30.

CAGE for a small rabbit. Rex, 344-6552.

SANDIA belt buckle. Dumas, 281-2179.

SKI RACK, prefer a bike/ski option arrangement, call soon. Blake, 881-1663.

HOUSEMATE to share house in Tijeras Canyon, 10 min. from Eubank Gate, non-smoker, pet OK. Boslough, 294-3907.

Turkey Treat on Tap Next Wednesday

IT'S TIME TO TALK TURKEY. The spooks may have been top-of-the-heap types in October, but this month it's a different story. Next Wednesday, Nov. 26, Chef Henry and his crew prepare a special Thanksgiving luncheon (feast is probably a better word!) for your dining pleasure. It's turkey with all the traditional trimmings (dressing, sweet potatoes, mixed vegetables, cranberry sauce, etc.), served from 11 a.m.-1:15 p.m. for the bargain price of \$2.95. Regular lunch offerings are available too.

MAYBE TURKEY TALK should be avoided on FAT day (the Friday After Thanksgiving). Instead, how about filet mignon or fried scallops talk? They're featured on the two-for-one dinner special — your choice of two entrees for an unbelievably low tab of \$14.95 — next Friday night, Nov. 28. (The Club opens at 4 p.m. that day.) After dinner, stomp off the holiday calories from 8-12 with those good old Poor Boys from Isleta. Now *there's* a group we can all be thankful for! Don't forget to call the Club office for reservations (265-6791).

IT'S STILL NOT TOO LATE to book that holiday party, but you'd better hurry. Club manager Sal Salas says some dates are still available, but the place is filling up fast. There's no room charge for Sandia and DOE organizations. Maggie Pappas will make the arrangements if you give her a call at the C-Club office.

THOSE T-BIRD CARD SHARKS' last blast for 1986 is set for Thursday, Dec. 4. You can bet there are no dirty deals when this group gets together; it's all good clean fun — right, gang? The festivities start at 10:30 a.m., and rumor has it that these folks get in the holiday mood early. So shuffle on out and enjoy . . .

ONCE WE'VE CELEBRATED Thanksgiving, it's time to think about you-know-what. The annual kids' Christmas party kicks off the holiday season on Saturday, Dec. 6. That jolly old white-bearded fellow with the red suit and twinkle in his eye has agreed to make an early appearance — and Mrs. Claus will be there too! A choral group from West Mesa High School, "Good Vibrations," gets things started at 10 a.m. with a round of carol singing. Then a skit by a clown troupe keeps everybody laughing until 10:30, when Mr. and Mrs. Claus arrive on the scene (they'll be around until the party closes down at noon). Meantime, the clowns will be on hand throughout the morning to make balloon animals for party goers. Other entertainment includes cartoons from 10:30-noon. Each kid receives a special free gift, along with a red or green balloon. Cokes, popcorn, doughnuts, and coffee (the last for the *big* kids) available at nominal prices. Admission is \$1 per child, or a can of food for the Salvation Army. Note to parents: This one's for members' kids only, so bring your membership card to show at the door. You can purchase photos of your kids with Santa, or bring a camera and shoot your own pix.

A HOWLING GOOD TIME is what's in store at the Coronado Wolfpack's Christmas party, set for Friday, Dec. 5, starting at 7 p.m. The cocktail hour from 7-8 features hors d'oeuvres and a no-host bar, and a sit-down dinner from 8-9 headlines prime rib (10-oz.) with all the trimmings. Then it's dancing and socializing from 9-whatever, with the Bob Banks Trio providing the music. These intrepid Lobo fans always live it up, so this is a party not to be missed! If you've paid your 1986-87 Wolfpack dues, you're eligible. Cost is \$12.50/person. Send a check made out to "Coronado Wolfpack" to either Ken Deller (5322) or Gerry Hitt (11713 Hughes NE, 87112); reservation deadline is Dec. 1. Questions? Call Ken on 4-6776 or 298-5705.

DECEMBER'S A BUSY MONTH at the Club, and that means there's only one Sunday brunch sched-



JOLLY OLD ST. NICK paid lots of attention to this youngster's "wish list" at last year's Christmas party for kids. Mr. Claus promises he'll also put in an appearance at this year's bash on Dec. 6. His better half will be there too!

uled (sob!). So circle Dec. 7 on your calendar, and plan to be at this town's biggest brunch bargain that day. It's served from 11 a.m.-2 p.m., and features super buffet selections: baron of beef, ham, sausage, that hot green chile, scrambled eggs, fruit juices, salad bar, and more. The tab is just \$4.95, and kids under 12 eat at half price. Help out those good folks in the C-Club kitchen by making an early reservation.

SAY HELLO TO 1987 at the big New Year's Eve party on (you guessed it) Wednesday, Dec. 31. The merriment starts at 6 p.m. and continues until the wee hours (1 a.m. on Jan. 1). This evening of fun has all the right ingredients to get 1987 off to a fantastic start: party favors and noise makers, hors d'oeuvres, a dinner buffet served from 7-10 p.m., and a free bottle of champagne and continental breakfast at midnight. The buffet features all kinds of good stuff like prime rib or snow crab, full salad bar, broccoli with hollandaise sauce, baked potatoes, tea and coffee, and cheesecake (with cherries) for dessert. Two great bands belt out the happy dancing music from 9-1: It's Spinning Wheel (samba, anyone?) in the ballroom and Western Flyer (stomp?) in the Eldorado room. The cost for all this fabulous food and entertainment is just \$40/couple, \$20/single. It's the best New Year's Eve deal in town — we kid you not. This one's always booked solid, so reserve early.

TRAVELIN' ALONG, SINGIN' A SONG — And you'll be side by side with a lot of other nice people when you sign up for some of those terrific tours put together by the C-Club Travel Committee. Don't miss these opportunities:

D.C. and Virginia — This trip's loaded with things to see and do, both in the nation's capital and historic Virginia. It comes up on April 4-11, and the timing is right; those famous cherry blossoms in

D.C. will be in full bloom. Sightseeing in Washington includes Capitol Hill, the White House, Bureau of Engraving, and the Smithsonian. OD on history in Virginia with visits to Mount Vernon, the Manassas (Bull Run) battlefield monument, and Monticello. Thrown in for good measure are tours of Richmond, Yorktown, and Jamestown. And you'll have a day and a half to explore fascinating Williamsburg. Then it's back to D.C. in time to see the Cherry Blossom Festival Parade, and to see other points of interest. The \$777/person price covers seven nights' lodging, RT air fare, charter bus, and all of the above.

Laughlin, Nev. — By popular demand, another adventure in Laughlin is on the agenda for all you wheeler-dealer types. It's set for Feb. 20-22, and guarantees several action-packed days. Tours of Davis Dam and Lake Mohave are on the schedule, if you can tear yourself away from those gaming tables for any length of time. For \$105/person, you get two nights' lodging at the Riverside Hotel, round-trip charter bus fare, continental breakfast the first day out, one lunch and one dinner, snacks and drinks along the way, and much more. Don't dally on the reservation; trips to "Las Vegas South" are among the most popular of the C-Club travel offerings.

Sympathy

To Tom Pilch (5144) on the death of his father in Pennsylvania, Oct. 20.

To Jean Hunt (7556) on the death of her father in Scotland, Nov. 7.

To Pauline Perry (21-1) on the death of her father in Clovis, Nov. 11.



THE HIT MEN won the 1986 Sandia B-League Post-Season Softball Tournament. Stacked on the bleachers are (front row, from left): Coach Dan Reda (6225), Frank Chavez (1512), John Orman (6444), and Paul Yourick (3428); (second row): Al Ortega (6242), Jerry Cap (1251), Dan Rader (1512), Ed Binasiewicz (1842), and Mickey Shortencarier (6415); (top row): assistant coach Bob Benner (1511), Chuck Harjes (1252), Jim Puissant (1251), and Larry Schluter (1512). Not shown is Steeve Breeze (7116) — didn't get to the Base on time?